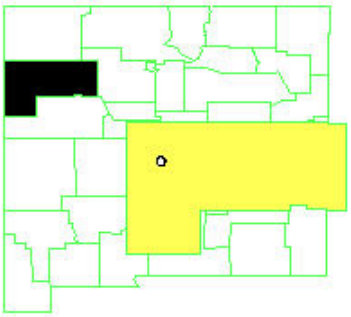
UNITED NUCLEAR CORPORATION (MCKINLEY COUNTY) NEW MEXICO



EPA ID# NMD030443303
Site ID: 0600819

EPA REGION 6
CONGRESSIONAL DISTRICT 03

Contact:
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214-665-7598

Other Names:
UNC Mining and Milling
Church Rock Mill

Updated: September 2012
Next Scheduled Update: October 2012

Background

The United Nuclear Corporation Site is located 17 miles northeast of Gallup, on the southern border of the Navajo Indian Reservation in Church Rock, McKinley County, New Mexico. The Site includes a former uranium ore processing mill (25 acres) and tailings disposal area (100 acres). The tailings disposal area is subdivided into three cells identified as the South Cell, Central Cell, and North Cell. The surrounding lands include Indian Tribal Land, Indian Allotment Land and UNC-owned property.

The area is sparsely populated, with the nearest residence located 1.5 miles north of the Site. The land use near the Site is primarily grazing for sheep, cattle and horses. A 1000-unit housing complex is being planned seven miles to the southwest of the Site. Four water wells are within a 4-mile radius, the nearest being 1.7 miles northeast of the Site; however, nearby residents generally have used bottled water.

The contaminants of concern are acidic mill tailings seepage, total dissolved solids, sulfate, thorium, radium, aluminum, ammonia, and iron. EPA signed the Record of Decision on September 30, 1988. The selected remedy included: containment and removal of contaminated ground water in three shallow ground-water zones utilizing existing and additional wells, evaporation of ground water removed from aquifers, and implementation of performance monitoring and evaluation programs. The tailings cells have been capped with an interim radon barrier cover as part of the reclamation activities directed by the Nuclear Regulatory Commission. Two evaporation ponds have been constructed on top of the cells as part of the EPA's ground-water remedy.

Current Status

Remedial activities are being conducted by the United Nuclear Corporation (UNC) in accordance with an EPA Unilateral Administrative Order under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). The remedial activities were designed to control tailings seepage in three shallow ground-water zones at the UNC Church Rock Superfund site (Site); the alluvium (referred to as the Southwest Alluvium) and Zones 1 and 3 of the Upper Gallup Sandstone Formation. The remedy consists of extraction wells to pump contaminated ground water and evaporation ponds for water disposal. Currently, groundwater migration is not under control. The only ground-water extraction system being operated is for Zone 3. The extraction systems for Zone 1 and the Southwest Alluvium are shut off. The Zone 1 extraction system was shut down in 1999 because it had reached its limit of effectiveness in achieving the cleanup levels established by EPA in its 1988 EPA Record of Decision (ROD). Operational results for Zone 1 demonstrated significant declines in pumping rates over time due to insufficient natural recharge of the aquifers. The loss in saturation reached levels that did not support pumping and the systems were shut down. For the Southwest Alluvium, the extraction system provided partial hydraulic containment to tailing-seepage migration, but there was little progress in achieving some Site cleanup standards over time and the system was temporarily shutoff to perform a natural attenuation test.

The Zone 3 system was shut down in 2000 for the same reasons as Zone 1 and because it was accelerating the movement of the contaminated water rather than containing it. However, over the last few years, UNC conducted other tests to enhance the performance of the extraction system for Zone 3 and stop the migration of the tailing seepage-impacted ground water. Those tests were unsuccessful, but operation of extraction wells at the leading edge of the seepage-impacted front was found to slow its advancement. Hence, UNC has continued to operate those wells and, in 2008, drilled new wells further down-gradient to continue to slow the seepage-impacted ground water, to the extent possible.

UNC continues to monitor ground-water chemistry in all three zones. UNC has evaluated the technical impracticability (TI) of achieving cleanup standards for sulfate, total dissolved solids (TDS) and manganese and recommended that EPA invoke a TI waiver for these constituents. UNC has also recommended the establishment of institutional controls to prevent the use of contaminated ground water in specific areas located off the UNC property on Navajo Tribal Trust and Indian Allotment lands.

On January 23, 2008, EPA initiated a third Five-Year Review. The review was completed and a 5-Year Review Report was signed on September 17, 2008. The U.S. Army Corps of Engineers' Sacramento Office assisted EPA in performing the review. A Site inspection was performed on March 19, 2008. A community meeting was held on May 5, 2009, at the Pinedale Chapter House to provide a status update and summary of the 5-Year Review.

EPA directed UNC to perform a Site-wide Supplemental Feasibility Study (SFS) in order to investigate and evaluate possible ground water remedial alternatives and to support a possible ROD Amendment or Explanation of Significant Differences, as appropriate. UNC provided Part 1 and Part 2 of the FS as separate documents, and based on comments and follow-up discussions, these two parts were combined

in a revised document submitted April 2011. On May 24, 2011, a site meeting was held to discuss these reports, comments and issues, and to determine the next appropriate steps. This portion of the SFS has been reviewed and comments provided on October 14, 2011. A follow-up conference call regarding the document was held on December 7, 2011, and UNC is working to incorporate call discussions and complete Part 3.

UNC has submitted a revised risk assessment related to the ground water units at the site. On May 24, 2011, a site meeting was held to discuss this report as well as any comments and issues, and to determine the next appropriate steps. This document has been reviewed and comments provided on July 11, 2011. A conference call was held on August 22, 2011, to discuss the submitted comments. A follow-up conference call regarding the document was held on December 9, 2011. UNC provided the final revised draft to the Agency in March 2012; comments were provided March 15, 2012; and, the revised document was submitted on July 19, 2012. Additional edits were made and the final version was submitted on August 13, 2012, and was accepted by EPA and NMED as the Final.

As part of the SFS process, UNC is conducting a water injection pilot test for Zone 3 to evaluate the feasibility of this technology. This proposal was approved by EPA in March 2010, and began in June 2010. Phase one of the pilot test was completed in July 2010. Results were reported as favourable in a final report submitted August 2010, and phase 2 of the pilot test was initiated in September 2010. Initial results submitted in November 2011 were promising; therefore, pilot study work continued. Operations and data collection activities through March 2012 continue to support implementation of this pilot study. It appears that the injection of alkalinity water is 'pushing' contaminated water upgradient towards the extraction wells and limiting downgradient movement. Ongoing actions will continue to be closely monitored and data collection will continue.

Working with the NRC, UNC has been developing a ground water background report. The purpose of this report is to establish background concentration conditions prior to tailings seepage. A conference call was held on January 13, 2012, to discuss the process and progress being made. UNC finalized and submitted a Technical Analysis Report in Support of License Amendment Request for Revised Background Standards Based on Updated Background Concentrations to the Agencies for review on April 21, 2012. This document has been reviewed by EPA, and comments were submitted to the NRC on June 29, 2012.

The Site team met in May 2012 to discuss site progress, site activities conducted, and future site actions that will be taken to move the site towards completion of the Site-side Supplemental Feasibility Study. The site team included participants from the New Mexico Environment Department, Nuclear Regulatory Commission, Department of Energy, EPA, Navajo Nation EPA, and UNC/GE.

EPA Region 6 and EPA Region 9 worked together to finalize the Non-Time-Critical Removal Action Memorandum for the Northeast Church Rock Site (NECR) in September 2011. This site is located approximately 1-mile from the UNC Site. The selected cleanup alternative for the NECR site is excavation of mine waste from NECR with disposal of the mine waste at the UNC Site. This cleanup option will only be implemented if the following two actions are taken and result in support for the NECR Site selected cleanup. (1) EPA Region 6 will need to issue a Proposed Plan and Record of Decision for the UNC Site that will evaluate this disposal alternative, and (2) the NRC will review a License Amendment Request for the UNC Site that requests this disposal alternative.

EPA Region 6 released the Proposed Plan for the Surface Soil Operable Unit at the UNC Site on July 20, 2012. The Preferred Alternative is On-site disposal at the UNC Site within the Tailings Disposal Area. The public comment period began on July 20, 2012, and ended on September 21, 2012. Two public meetings were held: August 29, 2012, and August 30, 2012. Refer to the *Proposed Plan* Section below for more details.

The New Mexico Environment Department has accepted the lead for the first Five-Year Review. Planning activities began on July 18, 2012. Additional activities will include a site inspection, interviews, and remedy evaluation. The Review is schedule for completion in September 2013, at which time it will be made available in the site repository.

Benefits

The surface reclamation actions performed by UNC under the direction and oversight of the U.S. Nuclear Regulatory Commission (NRC) at the Site between 1988 and 1996 have stabilized the mill tailings and have protected the Rio Puerco from contamination spills like the one that occurred in 1979.

National Priorities Listing (NPL) History

NPL Proposed Date: 12/30/82
NPL Final Date: 9/08/83

Location: The Site is located 17 miles northeast of Gallup, New Mexico and on the southern border of the Navajo Indian Reservation.

Population: The surrounding area is sparsely populated, with the nearest residence located 1.5 miles north of the Site.

Setting: The Site includes a former uranium ore processing mill and tailings disposal area, which covers about 25 and 100 acres, respectively. The tailings disposal area is subdivided into three cells by dikes. The cells are identified as the South Cell, Central Cell, and North Cell. The tailings cells have been capped with an interim radon barrier cover as part of the reclamation activities directed by the NRC. Two evaporation ponds have been constructed on top of the cells as part of the EPA's ground-water remedy.

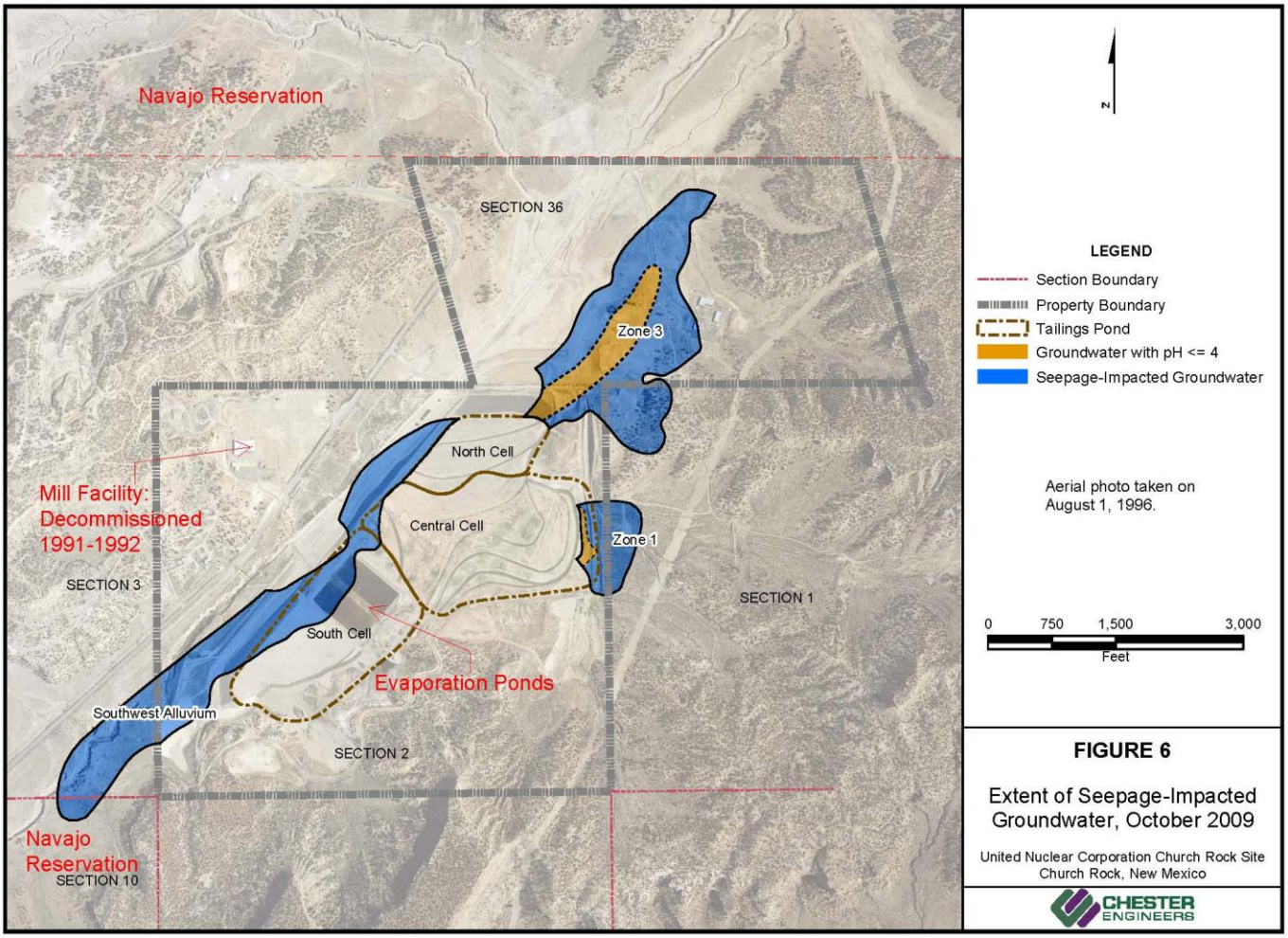
The surrounding lands include Indian Tribal Land, Indian Allotment Land and UNC-owned property. The land use near the Site is primarily grazing for sheep, cattle and horses. It is noted that the Ft. Defiance Housing Corporation, in conjunction with the U.S. Department of Housing and Urban Development and the Navajo Housing Authority, is planning to develop a 1000-unit housing complex, called the Springstead Estates Project, in the vicinity of Springstead (seven miles to the southwest of the Site).

Four water wells are within a 4-mile radius, the nearest being 1.7 miles northeast of the Site; however, nearby residents generally have used bottled water for drinking since the well water has a bad taste.

Hydrogeology: Three shallow water-bearing units beneath the Site were significantly recharged by mine water that was discharged into a local arroyo prior to and during Site milling operations. They are Zone 1 and Zone 3 of the Upper Gallup Sandstone Formations and the shallow alluvium (referred to as the Southwest Alluvium). These recharged units were then contaminated by tailings seepage from the Site. Underlying the Upper Gallup Sandstone Formation is the Mancos Shale. The Mancos Shale acts as an aquitard to prevent or retard the downward migration of contamination.

Principal pollutants: Acidic mill tailings, total dissolved solids, sulfate, thorium, radium, aluminum, ammonia, and iron

Site Map



Proposed Plan

Surface Soil Operable Unit Proposed Plan released July 20, 2012.

Preferred Alternative: On-Site Disposal at the UNC Site within the Tailings Disposal Area

Public Comment Period: July 20, 2012 through September 21, 2012

Public Meetings:

August 29, 2012
Pindale Chapter House
1149 Mile Marker 5
Church Rock, New Mexico
Meeting began at 6:00 p.m.

August 30, 2012
Octavia Fellin Public Library
115 West hill Avenue
Gallup, New Mexico
Meeting began at 6:00 p.m.

Site Repositories:

Octavia Fellin Public Library
115 West Hill Avenue,
Gallup, NM 87310

Navajo Nation Superfund Office
Highway 264/43 Crest road
St. Michaels, Arizona 86511

On the internet at:

Proposed Plan:
http://www.epa.gov/region6/6sf/newmexico/united_nuclear/nm_united_nuclear_proposed_plan.pdf

Proposed Plan Fact Sheet:
http://www.epa.gov/region6/6sf/pdffiles/unc_pplan_fs_7-16-2012.pdf

Record of Decision

EPA signed the ROD on September 30, 1988.

The selected remedy included:

1. Containment and removal of contaminated ground water in the Southwest Alluvium and Zones 1 and 3 of the Upper Gallup Sandstone utilizing existing and additional wells.
2. Evaporation of ground water removed from aquifers using evaporation ponds supplemented with mist or spray systems to enhance the rate of evaporation.
3. Implementation of a monitoring program to detect any increases in the areal extent, or concentration of ground water contamination at, and outside of, the boundary of the tailings disposal area.
4. Implementation of a performance monitoring and evaluation program to determine water levels and contaminant reductions in each aquifer, and the extent and duration of pumping actually required outside the tailings disposal area.

Ready-for-Reuse Determination

A Ready-for-Reuse Determination has not been made. The Site will be turned over to the Department of Energy for long-term care and monitoring of the tailings cells following closure.

Contacts

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EPA State Coordinator:	Kathy Gibson	214.665.7196
New Mexico Environment Department:	Earle Dixon	505.827.2980
Navajo Nation Superfund Contact:	Eugene Esplain	928.871.7331
EPA Region 6 Superfund Toll Free Number:		800.533.3508